

ABSTRACT OF THE DISCLOSURE

A method is described for catalyst-induced growth of carbon nanotubes, nanofibers, and other nanostructures on the tips of nanowires, cantilevers, conductive micro/nanometer structures, wafers and the like. The method can be used for production of carbon nanotube-anchored cantilevers that can significantly improve the performance of scanning probe microscopy (AFM, EFM etc). The invention can also be used in many other processes of micro and/or nanofabrication with carbon nanotubes/fibers. Key elements of this invention include: (1) Proper selection of a metal catalyst and programmable pulsed electrolytic deposition of the desired specific catalyst precisely at the tip of a substrate, (2) Catalyst-induced growth of carbon nanotubes/fibers at the catalyst-deposited tips, (3) Control of carbon nanotube/fiber growth pattern by manipulation of tip shape and growth conditions, and (4) Automation for mass production.